

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
RESEARCH AND TECHNOLOGY RESUME**

TITLE

ASTROMETRIC OBSERVATIONS OF ASTEROIDS AND SMALL BODIES

PERFORMING ORGANIZATION

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INVESTIGATOR'S NAME

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DESCRIPTION (a. Brief statement on strategy of investigation; b. Progress and accomplishments of prior year; c. What will be accomplished this year, as well as how and why; and d. Summary bibliography)

a) Strategy: Comets and asteroids are observed with the Palomar 1.5m telescope using a CCD array. The goal is observations of astrometric quality (the reduction to positions is separately funded) and the priorities are comets plus minor planets which are planet crossers, Trojans, Hildas, have high inclinations, or otherwise have unusual orbits. The stress is on recoveries of comets and asteroids seen at previous oppositions and follow up on newly discovered objects. Surveys and new discoveries are not being attempted. The modest amount of available dark time is used for faint objects, while brighter objects can be followed in the more plentiful light time. Since asteroids are usually discovered near perihelion when bright, the next several opportunities for recovery are normally fainter. Thus recoveries and follow up with big telescopes complement surveys by smaller instruments.

b) Accomplishments: During the past year two periodic comets were recovered. They were P/Jackson-Neujmin (1987t) and P/Longmore (1987c1). Both were shared recoveries. A follow up observation of the newly-discovered comet Rudenko (1987u) appeared on an IAU card as did the newly discovered comet Maury-Phinney (1988c). A magnitude 14.4 outburst of comet Schwassmann-Wachmann 1 was recorded at the end of May and was reported on an IAU card. Follow up observations of the newly-discovered Amor asteroid 1987 QB were also reported on the cards. A variety of additional comets and interesting asteroids, including more than a dozen planet crossers, were also recorded. The planet crossers 3752=1985 PA, 3753=1986 TO, and 3838=1986 WA were recovered and the Amor asteroid 1987 SL was tracked for six months.

c) Proposed Research: The CCD observing program will be continued on the 1.5m Palomar telescope for the recovery of faint comets and minor planets. The priorities will emphasize first opposition follow up and second opposition recovery. This is not a survey program. Comets and unusual asteroids will be given priority.

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d) Publications

The comet recoveries and other time-critical observations were presented on International Astronomical Union Cards 4438, 4443, 4451, 4455, 4493, 4562, and 4606.